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EXAMINER	
ROBINSON, HOPE A	
ART UNIT	**PAPER NUMBER**
1652	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/672,396	SANTI ET AL.	
	Examiner	Art Unit	
	Hope A. Robinson	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 December 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-15 and 69-95* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-15 and 69-95* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 9/6/07
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. *2/5/08*.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Application Status

1. Applicant's response to the Office Action mailed August 22, 2007 on December 21, 2007 is acknowledged. In addition, applicant's representative telephonically elected the species "*erythromycin* PKS" on February 5, 2008.

Claim Disposition

2. Claims 91-95 have been added. Claims 1, 3-15 and 69-95 are pending and are under examination.

New-Specification Objection

3. The specification is objected to because of the following informalities:

The specification is objected to because it contains an embedded hyperlink and/or other form of browser-executable code which appears in paragraph [0310] of the specification amendment filed on February 27, 2007 (see "httpd.apache.org").

The specification is objected to because the attempt to incorporate subject matter into the application by reference to Accession numbers is improper because the incorporation of essential material in the specification by reference to a foreign application or patent, or to a publication is improper. The instant claims have been amended to recite for example "Accession No. AF263245" . Although the phrase appears in the instant specification, the instant specification

does not disclose the structure of the organism referred to which is needed in the claims in association with the gene recited. The disclosure does indicate where these accession numbers can be found and the reference is not herein incorportated into the specification. Applicant is required to amend the disclosure to include the material incorporated by reference. The amendment must be accompanied by an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating that the amendatory material consists of the same material incorporated by reference in the referencing application.

Correction is required.

New-Claim Objection

4. The claims 76 and 92-94 are objected to because of the following informalities:

Claim 76 is objected to for the recitation of "wherein the each DNA", as this represents an improper sentence structure.

Claim 92 is objected to because the name of the organisms is not italicized.

Claims 93-94 or objected to for the use of quotation marks in the claims, see for example "("synthetic PKS module") or ("naturally occurring PKS module")".

Maintained and Amended-Claim Rejections - 35 USC 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1, 3-15 and 69-95 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claimed invention is directed to a synthetic gene encoding a polypeptide segment that corresponds to a reference polypeptide segment (see for example claim 1), however, the claims do not set forth said "reference polypeptide" and are devoid of a structure, especially in view of the recited sequence identity. In addition, no functional limitation is recited in the claims for the recited "polypeptide segment" described as being 90% or less or at least 95%, thus no correlation is made between function and structure. It is noted that claim 1 recites a PKS polypeptide segment, however, there is no indicia as to what said segment looks like or the reference structure. The claims also recite that the naturally occurring gene encodes a polypeptide that is 95% or 97% identical to the polypeptide segment encoded by the synthetic gene. Further, the claimed invention is directed to a coding segment of the gene that is less than 90% or 80% of the naturally occurring gene". Thus, the claims encompass a large variable genus,

not adequately described. The skilled artisan cannot envision the detailed chemical structure of the genus encompassed in the claims, thus the claimed invention lacks adequate written description.

The specification fails to provide any additional representative species of the claimed genus to show that applicant was in possession of the claimed genus. A representative number of species means that the species, which are adequately described are representative of the entire genus. The written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species by actual reduction to practice, disclosure of drawings, or by disclosure of relevant identifying characteristics, for example, structure or other physical and/or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient to show the applicant was in possession of the claimed genus. In addition, claims such as claim 92 provides an accession number for the organism such as erythromycin to provide a structural limitation, however, the disclosure does not provide a description of said structure, just the accession numbers.

Accordingly, in the absence of sufficient recitation of distinguishing identifying characteristics, the specification does not provide adequate written description of the claimed genus. The claimed genus could include non-functional proteins or proteins with a different function than the one contemplated. Therefore, the genus of claimed polypeptides encompasses widely variant species. Based on the unlimited variations contemplated one skilled in the art would at best expect a protein that is different or at worst a protein that is not functional. Further, *Vas-Cath Inc. v. Mahurkar, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed.*

Cir.1991), states that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in *possession of the invention*. The invention is, for purposes of the 'written description' inquiry, *whatever is now claimed*" (See page 1117). The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed" (See *Vas-Cath* at page 1116). The skilled artisan cannot envision the detailed chemical structure of the encompassed genus of genes and the encoded polypeptides, and therefore, conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method of isolating it. The compound itself is required. *See Fiers v. Revel, 25 USPQ2d 1601 at 1606 (CAFC 1993).*

Therefore, for all these reasons the specification lacks adequate written description, and one of skill in the art cannot reasonably conclude that the applicant had possession of the claimed invention at the time the instant application was filed.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and
> distinctly claiming the subject matter, which the applicant regards as his invention.

6. Claims 1, 3-15 and 69-95 are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter, which applicant (s) regard as their invention.

Claims 1, 85-86, 88, 90, 91, 93, 94, 95 and the dependent claims hereto are indefinite for the recitation of "synthetic gene" because it unclear how to distinguish a stretch of sequence that is synthetic from the naturally occurring one".

Claims 1, 75, 85-86, 88, 90 and the dependent claims hereto are indefinite for the recitation of "a polypeptide segment that corresponds to a reference polypeptide", as it is unclear what "reference polypeptide is being referred to because no structure is recited in the claims, especially in view of the recited percent identity. For instance, 95% identical to what structure.

Claim 7 in indefinite for the recitation of "near" because this is a relative term and it is unclear how "near" the restriction site is to the module. What is the true proximity?

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 3-4, 6, 8-15, 69-71, 92 are rejected under 35 U.S.C. 102(b) as being anticipated by Khosla et al. (U.S. Patent No. 6, 066,721, December 21, 1999), based on the breath of the claims.

The claimed invention is directed to:

"A synthetic gene encoding a polypeptide segment, wherein said polypeptide segment corresponds to a reference polypeptide segment encoded by a naturally occurring polyketide synthase (PKS) gene, and

a) the polypeptide segment encoded in the synthetic gene and the polypeptide segment encoded by the naturally occurring gene are the same length and comprise at least 50 amino acids;

b) the polypeptide segment encoded in the synthetic gene and the polypeptide segment encoded by the naturally occurring gene are at least 95% identical in amino acid sequence; and

c) the polypeptide segment encoding sequence of the synthetic gene and the polypeptide segment encoding sequence of the naturally occurring gene are less than 90% identical in nucleotide sequence".

The instant claim 1 as set forth above can be read very broadly since "gene" comprises structures with or without a promoter and the claim reads on any gene cluster having a catalytic domain.

Khosla et al. teach methods to prepare a polyketide synthase gene cluster in which the ketosynthase domain in module 1 (KS1) is inactivated (see claim 1 and paragraph 11 of the patent), thus producing a mutated or modified gene cluster. In addition, Khosla et al. teach a recombinant plasmid vector which comprises an expression system for production of polyketide synthase (PKS) wherein said expression system comprises a nucleotide sequence encoding a functional modified modular PKS operatively linked to control sequences for expression of said modified PKS containing at least a first and second module, (wherein said modification inactivates the ketosynthase (KS) catalytic domain of the first module),
thus anticipates claims 1, 3-4, 8-9 and 11-15 (see for example claims 3-7 of the patent). Instant claim 6 is also anticipated since Khosla et al. is silent on Type IIS enzyme restriction, thus would meet the claim limitation of being "free" of said restriction enzyme. Further, Khosla et al. teach that said inactivation is by modification of a single codon of said catalytic domain,
wherein said codon, in its unmodified form, encodes cysteine, and wherein said codon in its

modified form encodes alanine (see for example claims 3-7 of the patent), thus a preferred codon is selected. Moreover, Khosla et al. teach a vector wherein said modules are modules of the *erythromycin* PKS gene cluster (see instant claim 92). The patent also discloses that the control sequences are heterologous to the encoding nucleotide sequence. Therefore, the limitations of the claims are met by the reference.

8. Claims 1, 3-4, 6, 8-15, 69-71 and 92 are rejected under 35 U.S.C. 102(b) as being anticipated by Katz et al. (U.S. Patent No. 6,004,787, December 21, 1999), based on the breath of the phrase "synthetic gene" recited in the claims.

The claimed invention is directed to:

"A synthetic gene encoding a polypeptide segment, wherein said polypeptide segment corresponds to a reference polypeptide segment encoded by a naturally occurring polyketide synthase (PKS) gene, and

a) the polypeptide segment encoded in the synthetic gene and the polypeptide segment encoded by the naturally occurring gene are the same length and comprise at least 50 amino acids;

b) the polypeptide segment encoded in the synthetic gene and the polypeptide segment encoded by the naturally occurring gene are at least 95% identical in amino acid sequence; and

c) the polypeptide segment encoding sequence of the synthetic gene and the polypeptide segment encoding sequence of the naturally occurring gene are less than 90% identical in nucleotide sequence".

The term gene can be broadly interpreted as having a promoter or not and the term "synthetic" can demonstrate the hand of man using PCR or codon opitimization or genetic engineering. The claim can thus be broadly read as "a polynucleotide encoding a polypeptide segment...". Katz et al. teach a method to produce novel polyketide structures by designing and introducing specified changes in the DNA governing the synthesis of the polyketide accomplished by introducing one or more specified changes into the DNA sequence, thus a

synthetic gene. The method of Katz et al. is disclosed as most useful when the segment of the chromosome modified is involved in polyketide biosynthesis, particularly for manipulation of polyketide synthase genes (derived from *erythromycin*), see columns 2-3 of the patent. Katz et al. also teach PKS domains such as AT and ACP, and teach PKS modules (see column 3 of the patent). Katz et al. is silent on "TypeIIS", thus would inherently be "free of TypeIIS". The method of Katz et al. utilizes restriction enzymes such as SphI and PstI (paragraph [0064] of the patent). Katz et al. discloses a gene cluster 6-deoxyerythronolide from *S. erythraea* (see paragraph 172 of the patent), which has a native thioesterase II. Claims directed to vectors and host cells are anticipated since expression vectors and cells are used in the patent (see paragraph [0017]). Further claims reciting a synthetic gene with a certain percent identity to the encoding gene are anticipated since following manipulation of the DNA structure the gene of Katz et al. would not be 100% identical to the native structure. Therefore, the limitations of the claims are met by the reference.

Claim Rejections - 35 USC 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject

matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103 (a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103 (c) and potential 35 U.S.C. 102 (f) or (g) prior art under 35 U.S.C. 103 (a).

10. Claims 1, 3-15, 69-71, 74-75, 77-82, 85-95 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Katz et al. (U.S. Patent No. 6,004,787, December 21, 1999) in view of Kim et al. (Gene, vol. 199, pages 293-301, 1997).

Katz et al. teach a method to produce novel polyketide structures by designing and introducing specified changes in the DNA governing the synthesis of the polyketide accomplished by introducing one or more specified changes into the DNA sequence. The method of Katz et al. is disclosed as most useful when the segment of the chromosome modified is involved in polyketide biosynthesis, particularly for manipulation of polyketide synthase genes (derived from *erythromycin*), see columns 2-3 of the patent. Katz et al. also teach PKS domains

such as AT and ACP, and teach PKS modules (see column 3 of the patent). The method of Katz et al. utilizes restriction enzymes such as SphI and PstI (paragraph [0064] of the patent). Katz et al. discloses a gene cluster 6-deoxyerythronolide from *S. erythraea* (see paragraph 172 of the patent), which has a native thioesterase II. Katz et al. renders obvious claims directed to vectors and host cells since expression vectors and cells are used in the patent (see paragraph [0017]). Katz et al. also render obvious claims reciting a synthetic gene with a certain percent identity to the encoding gene since following manipulation of the DNA structure the gene of Katz et al. would not be 100% identical to the native structure. Claims reciting a length of at least 100 amino acid residues is also obvious since the phrase "at least" has no upper boundary and the structure of the encoding genes are well established in the art. The recitation of a gene that comprises 500 to 50,000 base pairs is obvious since the gene of Katz et al. falls within that range (see the sequence listing in the patent).

Katz et al. disclose variations and modifications of the methods for obtaining the desired plasmids, hosts for cloning and choices of vectors and segments of *eryA* DNA to clone and modify, that result in substantially the same strains and same products as those described herein. For example, the use of the plasmids pWH3 and pWHM4 as *E. coli-Sac. erythraea* shuttle vectors. In addition, Katz et al. discloses other vectors can be employed wherein all or part of pWHM3 or pWHM4 is replaced by other DNA segments that function in a similar manner, such as replacing the pUC19 component of pWHM3 and pWHM4 with pBR322, available from BRL, employing different segments of the pIJ101 or pJV1 replicons in pWHM3 and pWHM4, respectively, or employing selectable markers other than thiostrepton- and ampicillin-resistance. This disclosure renders claim 10 as obvious since the art recognizes that a library includes a

population of vectors having different/heterologous nucleic acids. Claims such as claim 88 are obvious especially in view of the product by process nature of the claim, since Katz et al. teach the claimed synthetic gene and the recited length has no upper limit. Further, the manipulation of the gene by Katz et al. renders the gene as "synthetic". In addition, claim 76 is also obvious since the aforementioned disclosure in the Katz et al. patent could achieve the recited limitations (see paragraph 176 of Katz et al.). The Katz et al. patent does not explicitly teach codon optimization, however, Kim *et al.* teach that selective codons in a given gene positively correlate with its expression efficiency, (see 293 of the reference). In addition Kim et al. teach the codon optimization of a leader sequence leads to further enhancement of synthetic genes, (see page 297, right column, section 3.3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to have a synthetic gene encoding a polypeptide and methods of producing same, that corresponds to a reference polypeptide, wherein said polypeptide is encoded by a naturally occurring PKS gene as recited in claim 1 for example because Katz et al. teach the manipulation of PKS gene structures and Kim et al. teach codon optimization for enhancement of synthetic genes. Furthermore, the instant specification discloses at paragraph [0024] that "[I]n a method for designing a synthetic gene in accordance with the present invention a reference amino acid sequence is provided and reverse translated to a randomized nucleotide sequence which encodes the amino acid sequence using a random selection of codons which, optionally, have been optimized for a codon preference of a host organism. One or more parameters for positions of restriction sites on a sequence of the synthetic gene are provided and occurrences of one or more selected restriction sites from the randomized nucleotide sequence

are removed. One or more selected restriction sites are inserted at selected positions in the randomized nucleotide sequence to generate a sequence of the synthetic gene.

[0039] Identifying positions of preselected restriction sites in the randomized nucleotide sequence, identifying an ability of one or more codons comprising the nucleotide sequence of the restriction site for accepting a substitution in the nucleotide sequence of the restriction site wherein such substitution will (a) remove the restriction site and (b) create a codon encoding an amino acid identical to the codon whose sequence has been changed, and changing the sequence of the restriction site at the identified codon.... [0138] Methods for reverse translation are well known".

Thus, one of ordinary skill in the art would be motivated to produce a synthetic gene with a reasonably expectation of success based on the teachings of Katz et al. because the reference demonstrates the manipulation of gene structures encoding known proteins and Kim et al. as well as the instant specification acknowledges the usage of codon optimization to enhance the expression of a protein of interest. Moreover, the Kim et al. reference is relied upon for the teaching that the expression of a native human gene can be highly optimized by replacing the non- and un-preferred codons with preferred codons. Kim et al. teaches that despite the increased content of CpG dinuclutide in the synthetic gene relative to the wild type human gene, the synthetic gene is expressed at high levels in human cells (see Figure 2 on page 295 of the Kim et al. reference which discloses optimized sequences of the human coding sequence of the mature human erythropoientin (EPO)). The vast majority of the codon changes resulted in the substitution with G or C leading to increase the content of the CpG pair. Kim et al. teach the expression of the synthetic gene optimized with human preferred codons expressed at higher

levels than that optimized with yeast codons (see the paragraph bridging the two columns on page 297). One of ordinary skill in the art would be motivated to combine the teaching of Katz et al. and Kim et al. because Kim et al. teach that since the gene optimized with human codons in human cell expresses at a higher level than that optimized with yeast codons, the ordinary skill in the art would have come to the conclusion that optimizing the signal peptide coding sequence with human codons would enhance the expression even further. Thus, the claimed invention was obvious to make and use at the time it was made and was *prima facie* obvious.

Response to Applicant's Arguments:

11. Applicant's arguments have been fully considered. Note however, that new objections and rejections have been instituted for the reasons stated above. . Upon due reconsideration, the rejection under 35 U.S.C. 112, first and second paragraph remain. On page 13 of the response applicant state that "the inventors have disclosed a new method for making synthetic genes and has described novel synthetic genes made by the process". It is further stated that "a unique, identifying feature of the synthetic genes is that they can encode the amino acid sequence identical to that of a naturally occurring protein...but have a nucleotide sequence that differs dramatically from the naturally occurring gene". Applicant opines that the written description rejection of record is confusing since the claimed invention is not directed to polypeptides. The rejection addresses the claims as a whole, which is directed to a synthetic gene encoding a polypeptide segment. The encoding portion opens up the claim and the gene gets function from

the encoding as well, thus the function of the polypeptide is important to the claim (for example if the gene encodes a protein with no function). Moreover, the claims are directed to a gene that encodes a portion of a polypeptide (any polypeptide) encoded by any PKS gene cluster. Additionally the claims are directed to a structure that is at least 95% identical in amino acid sequence; however, the claim provides no structure or function for the protein. Clearly claim 1 for instant is a genus claim. Further, the structure and function of the protein is indeed important to the claimed invention. Applicant intends for the invention to produce DNA structures that will encode known proteins with known functions, however, there is no guarantee that the recited protein segment will retain function. Further, the art recognizes that the structure of the protein is crucial to the protein's structure-function relationship, thus the specification needs to provide details with regard to the recited "segment of the protein" with regard to structure and function. Applicant states that the specification provides greater than 85 kilo bases of synthetic genes falling within the scope of the claims. It is also stated that it would be clear to one of skill in the art, with undergraduate knowledge of the genetic code and the relationship between DNA and amino acid sequences, and guided by the teachings of the specification providing detailed description of the design of synthetic genes that the inventors had possession of the invention claimed.

The claims are given their broadest reasonable interpretation and the instant claim 1 reads on "a polynucleotide encoding a polypeptide segment that corresponds to a reference polypeptide segment encoded by a naturally occurring polyketide synthase gene" (based on the preamble of claim 1). Thus the issue at hand is possession of the genus encompassed in the claims which is not limited to the disclosure in the specification or the cited prior art. As stated above, *Vas-Cath*

Inc. v. Mahurkar, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed. Cir.1991), states that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in *possession of the invention*. The invention is, for purposes of the 'written description' inquiry, *whatever is now claimed*" (See page 1117). The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed" (See *Vas-Cath* at page 1116). The skilled artisan cannot envision the detailed chemical structure of the encompassed genus of genes and the encoded polypeptides, and therefore, conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method of isolating it. The compound itself is required. *See Fiers v. Revel, 25 USPQ2d 1601 at 1606 (CAFC 1993).* Applicant points to the specification and references made to GenBank, however, claim 1 has to stand on its own and the limitations of the specification cannot be read into the claims. Thus, the rejection remains.

With regard to the enablement rejection, applicant's comments are noted, however are moot since the rejection is withdrawn. With regard to the 112, second paragraph rejection, the issue of the recited percent language absent a reference structure remains. Applicants did not amend the claims and the arguments presented are not persuasive since it is unclear what structure the claimed structure is identical to. It is noted that for example the art recognizes 20 naturally occurring amino acids however, the composition and arrangement of the 20 can vary, and thus a reference sequence is needed.

Conclusion

13. No claims are allowable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hope A. Robinson whose telephone number is 571-272-0957. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nashaat T. Nashed, can be reached at (571) 272-0934. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hope Robinson, MS

HOPE ROBINSON
PRIMARY EXAMINER

Primary Examiner